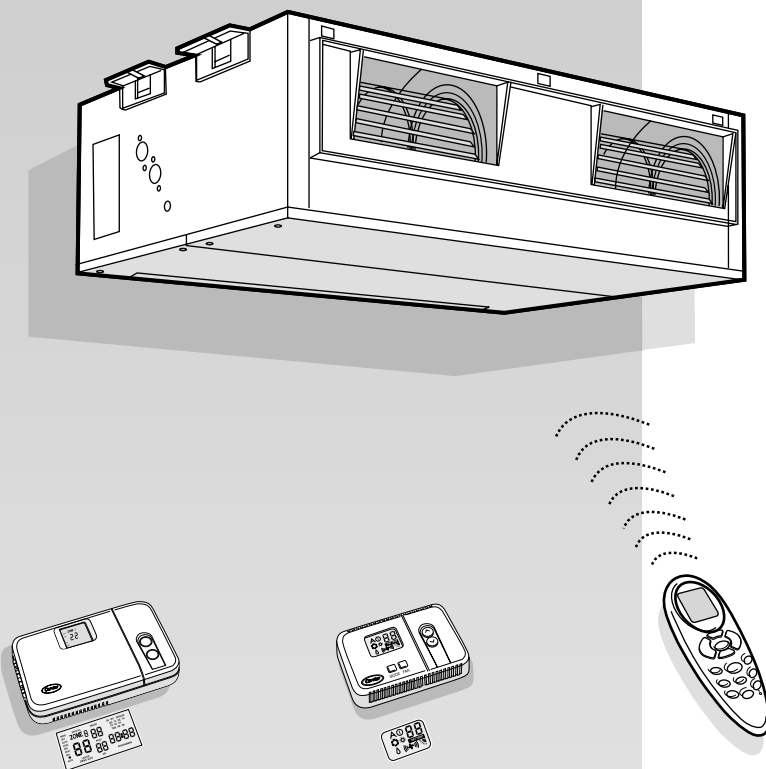




40SMC---N



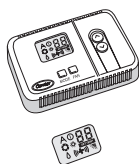
INSTALLATION MANUAL

40SMC---N

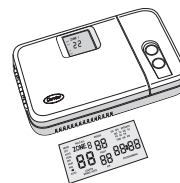
Ducted above-ceiling units (Cooling only and heat pump)



IR Remote Control



“Room Controller”



“Zone Manager”

The unit can be used with infrared Remote Control, with the Carrier “Room Controller” or “Zone Manager”.

For the installation instructions of the wired remote controls and the remote control refer to the corresponding manuals.

For the instructions for use of the air conditioner and outdoor installation instructions refer to the corresponding manuals.

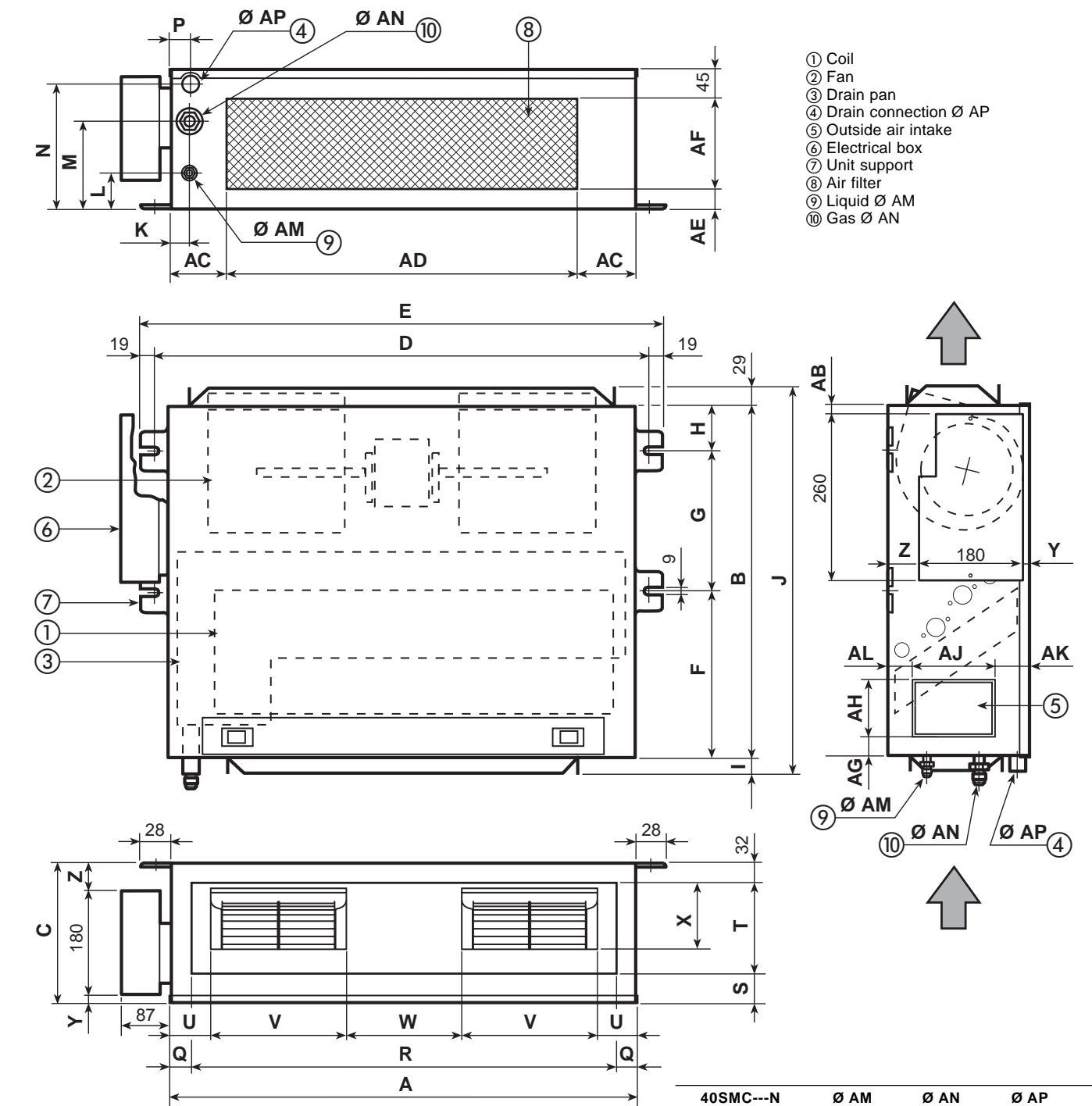
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Cooling only and heat pump models	Power supply
40SMC009N 40SMC012N 40SMC018N 40SMC024N 40SMC028N 40SMC036N 40SMC048N 40SMC060N	230V~50Hz

40SMC---N

Dimensions



40SMC---N	Ø AM	Ø AN	Ø AP
009	1/4"	3/8"	20
012 - 018	1/4"	1/2"	20
024	1/4"	1/2"	25
028	1/4"	5/8"	25
036 - 048 - 060	3/8"	3/4"	25

40SMC---N	A	B	C	D	E	F	G	H	I	J	K	L	M	N	P	Q	R	S
009 - 012 - 018	725	555	220	743	781	262	222	71	23	607	31.5	59	140	200	35	33	659	45
024 - 028 - 036	925	660	285	943	981	241.5	321	97.5	23	712	33.5	118.5	199.5	264.5	35	37.5	850	87.5
048 - 060	1250	750	310	1268	1306	261	321	168	22	801	43	143	224	289	43	110	1030	103

40SMC---N	T	U	V	W	X	Y	Z	AB	AC	AD	AE	AF	AG	AH	AJ	AK	AL
009 - 012 - 018	143	62	211	179	103	13	27	3,5	89	545	33	142	31	90	128	54	38
024 - 028 - 036	165.5	90	276	193	125	23	82	31	99	725	33	207	31	110	160	50	75
048 - 060	175	203	290	264	116	23	107	31	109	1030	32	233	32	140	185	50	75

When designin an installation ensure the use of up-to-date drawings available from your local Carrier office.

Table I: Nominal data

MAXIMUM POWER INPUT (WATT) ⁽¹⁾		
Cooling only and heat pump		
Unit	Cooling	Heating
40SMC009N	120	120
40SMC012N	130	130
40SMC018N	180	180
40SMC024N	290	290
40SMC028N	320	320
40SMC036N	420	420
40SMC048N	576	576
40SMC060N	620	620

Note:

For power supply wire size and delay type fuses, refer to the outdoor unit installation instructions.

⁽¹⁾ Power inputs have been measured with free outlet, at maximum speed and with voltage 264V~50Hz.

Table II: Operating limits

Cooling / Heating	Refer to outdoor unit installation manual.	
Main power supply	Nominal single-phase voltage Operating voltage limits	230V ~ 50Hz min. 198V – max. 264V

Table III: External static pressure

40SMC---N	009	012	018	024	028	036	048	060
Nominal static pressure (Pa)	33	40	45	60	50	50	70	80
Maximum static pressure (Pa)	60			70			160	

General information

Unit installation

Read this instruction manual thoroughly before starting installation.

- This unit complies with the low-voltage (EEC/73/23) and electromagnetic compatibility (EEC/ 89/336) directives.
- Follow all current national safety code requirements. In particular ensure that a properly sized and connected ground wire is in place.
- Make sure the electric system voltage and frequency comply with the required values and the power input available is suitable for running the unit. Also ensure that national safety code requirements have been followed for the main supply circuit.
- Connection of the system to the mains power supply is to be carried out in compliance with the wiring diagram shown in the installation instructions of the external section.
- Connect the indoor and outdoor units by means of copper pipes equipped with flanged connections (not included in the supply).

Use insulated seamless refrigeration grade pipe only, (Cu DHP type according to ISO1337), degreased and deoxidized, suitable for operating pressures of at least 4200 kPa and for burst pressure of at least 20700 kPa. Under no circumstances must sanitary type copper pipe be used.

- After installation thoroughly test system operation and explain all system functions to the owner.
- Use this unit only for factory approved applications: **the unit cannot be used in laundry or steam pressing premises.**

WARNING:

Disconnect the mains power supply switch before servicing the system or handling any internal parts of the unit.

- This installation manual describes the installation procedures of the indoor unit of a residential split system consisting of two Carrier manufactured units. Do not connect this unit to any other manufacturer's outdoor unit. The manufacturer declines any liability for system malfunction resulting from unauthorised system combinations.

40SMC---N

General information

- The manufacturer declines any liability for damage resulting from modifications or errors in the electrical or refrigerant connections.
Failure to observe the installation instructions, or use of the unit under conditions other than those indicated in table "Operating limits" of the outdoor unit installation manual, will immediately invalidate the unit warranty.
- Failure to observe electric safety codes may cause a fire hazard in the event of short circuits.
- Inspect equipment for damage during transport.
In case of damage file an immediate claim with the shipping company.
Do not install or use damaged units.
- In case of malfunction turn the unit off, disconnect the mains power supply and contact a qualified service engineer.
- Maintenance of the refrigerant circuit must only be carried out by qualified personnel.
- **All of the manufacturing and packaging materials used for this appliance are recyclable.**
- Dispose of the packaging material in accordance with local requirements.
- This equipment contains refrigerant that must be disposed of correctly.
At the end of the unit's life, the refrigerant must be taken to special collection points or delivered to the retailer for correct disposal.

Choosing the installation site

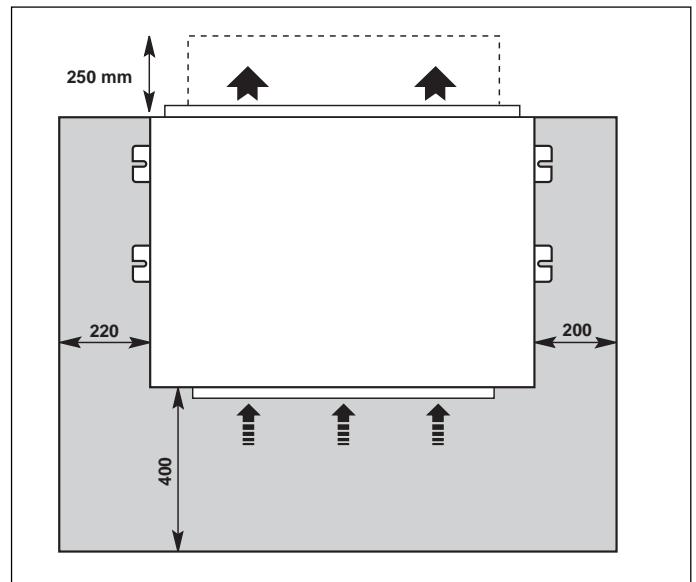
- The SMC---N unit has been conceived for above-ceiling installation.
- The unit must be installed in a not easily accessible place.
- Do not install the unit below 2.5 m.
- To install the unit at 2.2-2.5 m from the floor, use a discharge pipe with a minimum length of 250 mm.

Positions to avoid:

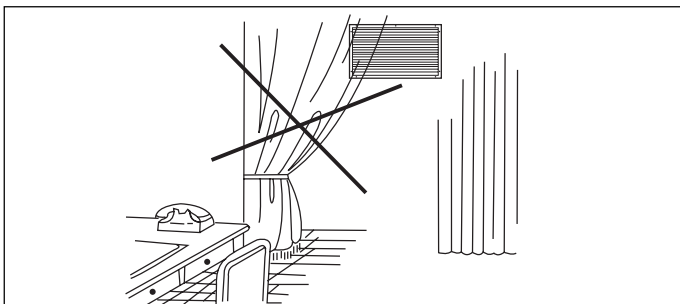
- Exposure to direct sunlight.
- Areas close to heat sources.
- On damp walls or in positions that may be exposed to water hazard.
- Where curtains or furniture may obstruct free air circulation.

Recommendations:

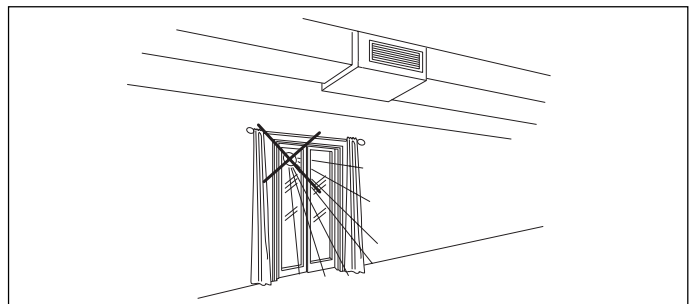
- Choose an area free from obstructions which may cause uneven air distribution and/or return.
- Consider using an area where installation is easy.
- Choose a position that allows for the clearances required.
- Look for a position in the room which ensures the best possible air distribution.
- Install unit in a position where condensate can easily be piped to an appropriate drain.



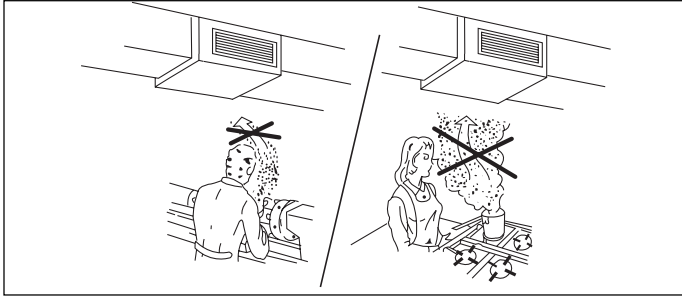
Warnings: avoid...



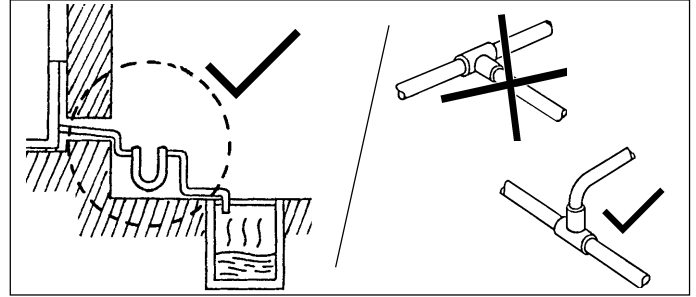
... any obstruction of the unit air intake or supply grilles.



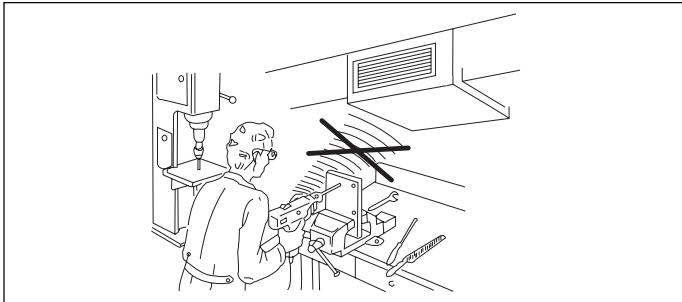
... exposure to direct sunshine, when the unit is operating in the cooling mode; always use shutters or shades.
... positions too close to heating sources which may damage the unit.



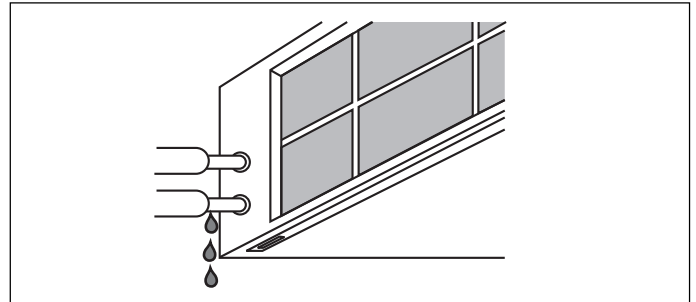
... exposure to oil vapours.



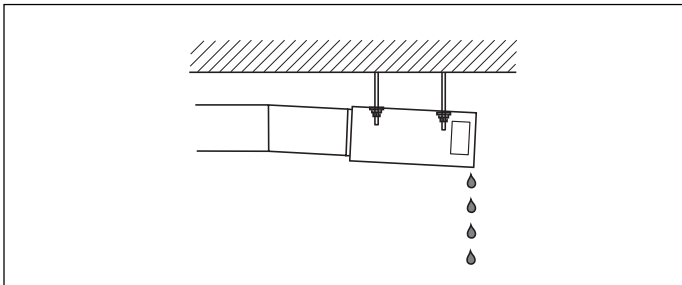
... connecting condensate piping to sewage system drain without appropriate trap. Trap height must be calculated according to the unit discharge head in order to allow sufficient and continuous water evacuation.



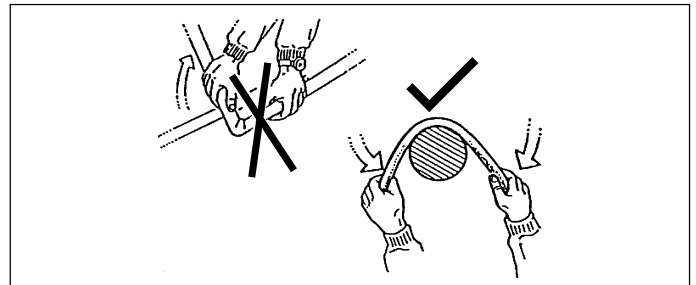
... installation in areas with high frequency waves.



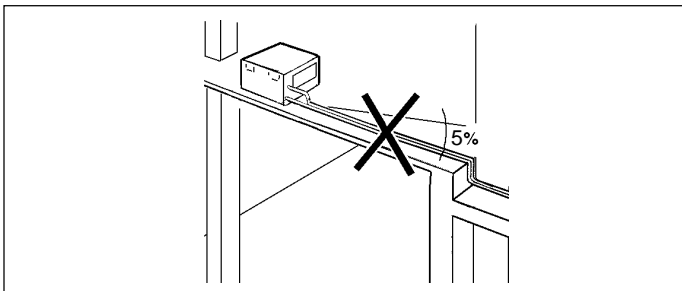
... only partial insulation of the piping.



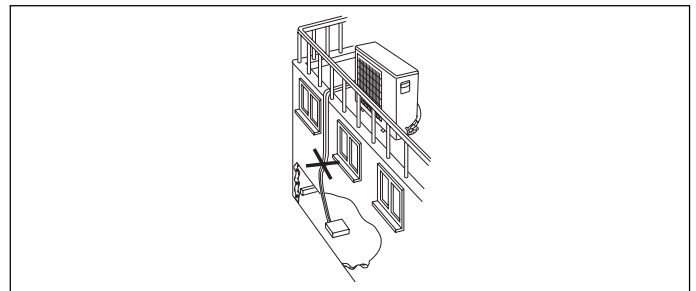
... inclined installation which could cause dripping.



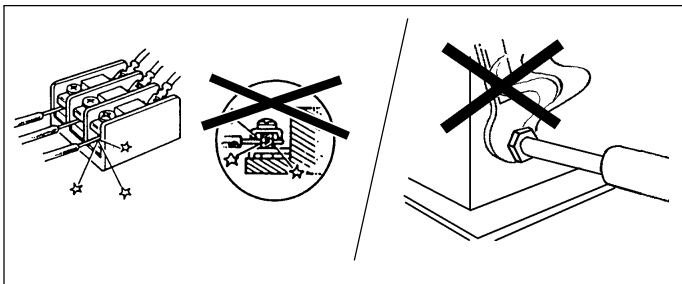
... flattening or kinking the refrigerant pipes or condensate pipes.



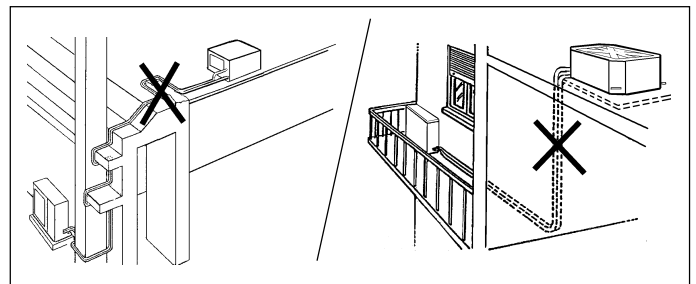
... horizontal sections or curves of condensate drain piping with less than 5% slope.



... excessive height difference between outdoor and indoor units (see installation manual of outdoor unit).



... slack on electrical connections.
... disconnecting refrigerant connections after installation: this will cause refrigerant leaks.

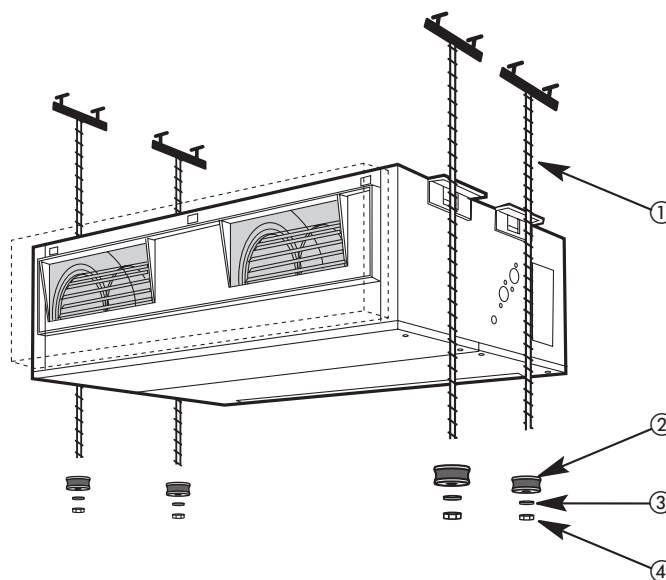
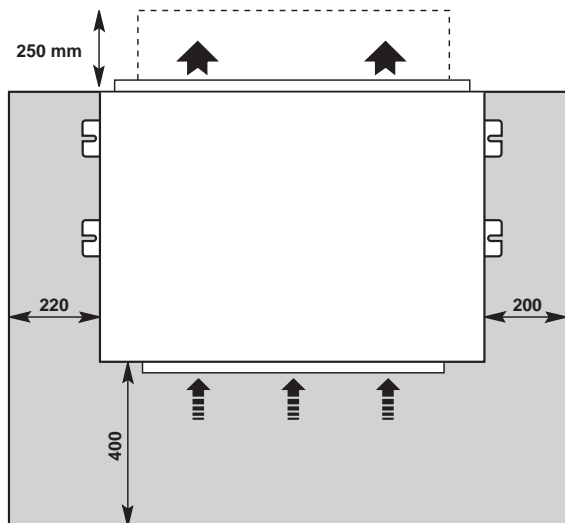


... unnecessary turns and bends in connection pipes (see installation manual of outdoor unit).
Excessive connection pipe length (see installation manual of outdoor unit).

40SMC---N

Installation

Service area



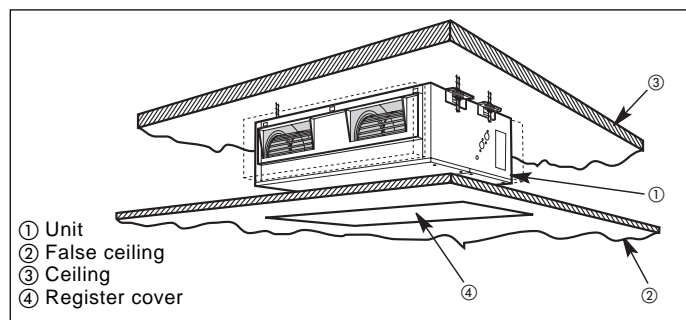
- ① Screws-in rod
- ② Shock absorbers
- ③ Washer
- ④ Nut

Unit installation

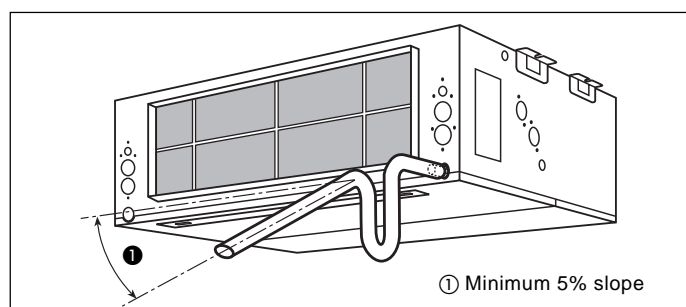
Insert 4 M8 threaded rods into the ceiling. Introduce the other end of the rods through the slots of unit suspension brackets. Position the shock absorbers, add washers and screw the nuts down until the unit is correctly supported. If there is sufficient space, a rubber or neoprene sheet can be placed between the ceiling and the unit.

IMPORTANT:

The unit must be perfectly levelled.



Once these operations have been completed, an above-ceiling installation will be necessary to conceal the unit; do not forget to install a removable panel to allow for maintenance operations. Grills of an adequate size should be incorporated in the unit for return air suction.



Condensate drainage

All units are provided with an internal condensate drain pan which incorporates a drainage tube 20 mm external Ø (009, 012, 018) and 25 mm (024, 028, 036, 048, 060).

A tube for evacuating condensates must therefore be provided.

The recommendations below must be followed in all cases:

- Use galvanized steel, copper or plastic piping.
Do not use ordinary garden hose.
- Use a material that guarantees perfect watertightness on the drainage pipe.
- If rigid material has been used for the drainage, it is necessary to provide some kind of elastic coupling in the drainage line to absorb possible vibrations.
- The drainage line should always be below the connexion itself, and should also slope to facilitate drainage.

WARNING:

No drillholes should be made in the base of the unit, since the drain pans may be perforated.

Ductwork

The ductwork dimensions should be determined in accordance with the air flow circulating through it and with the available static pressure of the unit.

These information are available in the final pages of the manual.

Various suggestions are made herebelow, regarding the layout and design of the said ductwork:

- Whatever type of duct is used, it should not be made of materials which are flammable, or which give off toxic gases in the event of a fire.

The internal surfaces should be smooth, and not contaminate the air which passes through.

- At the points where the duct joins with the unit, it is advisable to use a flexible connection which absorbs vibration and prevents the transmission of noise inside the ductwork.
- Bends should be avoided as much as possible near the unit outlet.

If unavoidable, they should be as slight as possible, and internal deflectors should be used when the duct is of large dimensions.

IMPORTANT:

Duct calculation and design must be effected by a qualified technician.

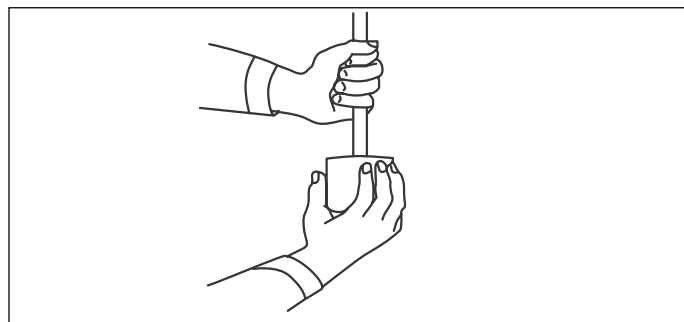
Refer to the outdoor unit installation manual for tube sizing, and limitations (slope, length, number of bends allowed, refrigerant charge, etc.).

Model	Tubing diameter			
	Gas (Suction)		Liquid (Discharge)	
	mm	(inches)	mm	(inches)
40SMC 009N	9,52	(3/8")	6,35	(1/4")
40SMC 012N-018N-024N	12,70	(1/2")	6,35	(1/4")
40SMC 028N	15,87	(5/8")	6,35	(1/4")
40SMC 036N-048N-060N	19,05	(3/4")	9,52	(3/8")

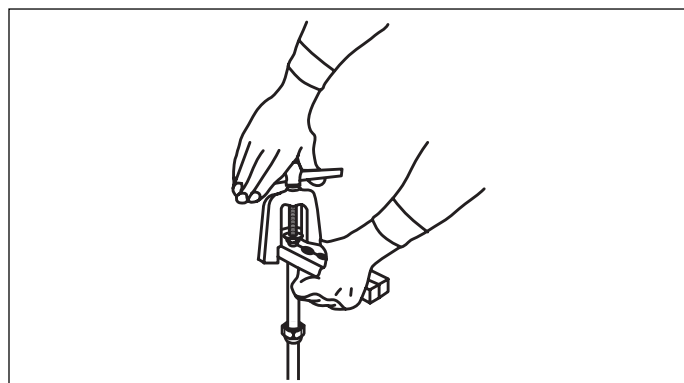
For refrigerant tubes use seamless, insulated refrigeration grade tube, (Cu DHP type according to ISO1337), degreased and deoxidized, suitable for operating pressures of at least 4200 kPa and for burst pressure of at least 20700 kPa.

Under no circumstances must sanitary type copper pipe be used.

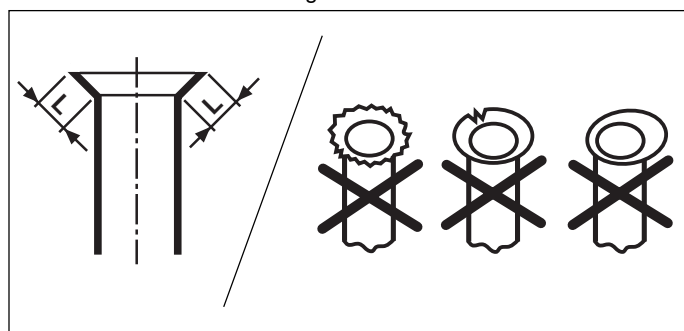
Flaring the end of the tubing



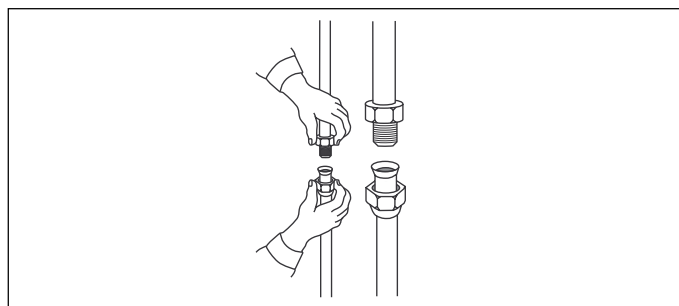
Remove protective caps from the copper tube ends. Position tube end downward, cut the tube to the required length and remove the burrs with a reamer.



Remove flare nuts from the unit connections and place them on the tube end. Flare the tube with the flaring tool.



Flare end must not have any burrs or imperfections. The length of the flared walls must be uniform.

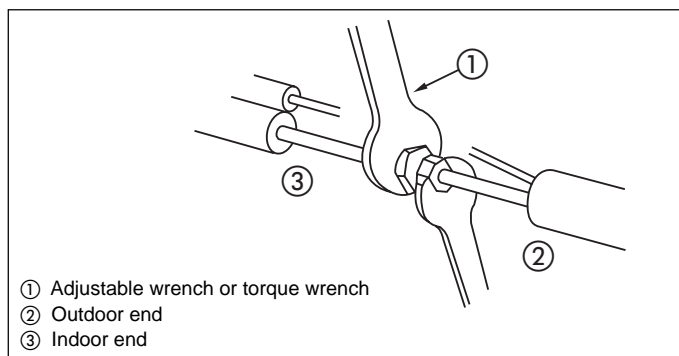


Lubricate the tube end and thread of the flare fitting with anti-freeze oil.

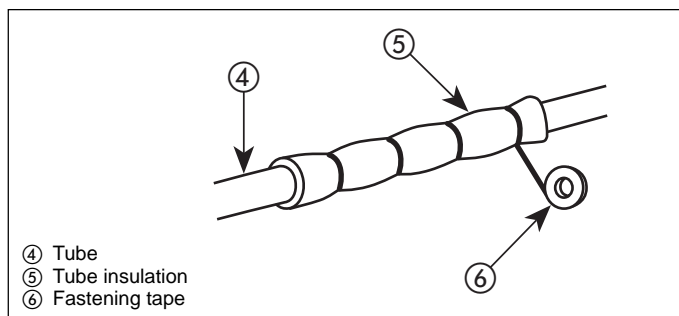
Finger-tighten the fitting several turns, then tighten it fully with two wrenches by applying the tightening torque indicated in the table.

Connection to the unit

Insufficient tightening torque will cause gas leaks. Overtightening the fittings will damage the tube flaring and cause gas leaks.



Tubing diameter mm (inches)	Torque Nm
6,35 (1/4")	18
9,52 (3/8")	42
12,70 (1/2")	55
15,87 (5/8")	65
19,05 (3/4")	100



Once all connections have been completed, check for leaks by using a leak detector specific for HFC refrigerants. Finally wrap connections with anti-condensate insulation and tighten with tape, without exerting great pressure on the insulation.

Repair and cover any possible cracks in the insulation. Connection pipes and electric cables between indoor and outdoor units must be fixed to the wall with appropriate conduits.

40SMC---N

Refrigerant connections

VERY IMPORTANT:
To prevent electrical shock or equipment damage, make sure the power supply sectioners are open before electrical connections are made.
If this action is not taken, personal injury may occur.

First make the refrigerant connections and then the electrical ones. In the case of disassembly, operations must be carried out in the opposite sequence.

WARNING:
Operation of unit on improper line voltage constitutes abuse and is not covered by Carrier warranty.

IMPORTANT:

- The mains supply indoor unit – outdoor unit connecting cable must be H07 RN-F (60245IEC66) type synthetic rubber insulation with neoprene coating.
- Consult the wiring diagram sent with the outdoor unit.
- To effect the unit power supply (wire inlet, conductor section, protections, etc..), consult the Electrical Data Table, the wiring diagram sent with the unit and the

standards in force affecting the installation of air conditioning equipment.

- To connect a condensate drainage pump follow the wiring diagram instructions in the next pages.

VERY IMPORTANT:
The installer should place protection elements in the line according to the legislation in force.

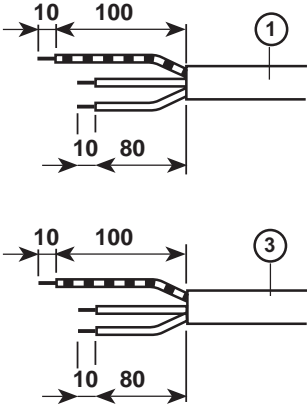
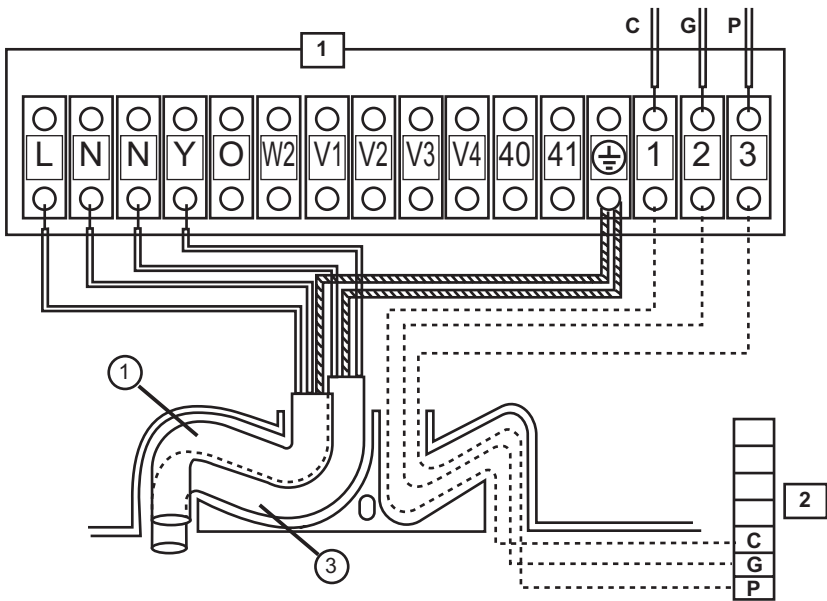
IMPORTANT:

- Make ground connection prior to any other electrical connections.
- Make electrical connections between units prior to proceeding to mains supply unit connection.
- According to the installation instructions, the disconnecting switches from the mains power supply should have a contact gap (4 mm) such that total disconnection can be ensured under the conditions provided for by overvoltage class III.

NOTE:

- All field electrical connection are the responsibility of the installer.

Cooling only
40SMC 009N, 012N
Power supply from indoor unit



IMPORTANT:
Cable ① must always be placed above cable ③.

NOTE:
See the outdoor unit installation manual.

- ① Power supply cable (H07 RN-F)
- ③ Interconnection cable (H07 RN-F)

				Indoor and outdoor units interconnections (mm²)												CRC		
Model	GND	L	N	GND	N	Y	O	W2	V1	V2	V3	V4	40	41	1	2	3	
40SMC009N	3G1,5			3G1,5			Disconnected								3 x 0,75			
40SMC012N	3G2,5			3G2,5											H03VV-F			

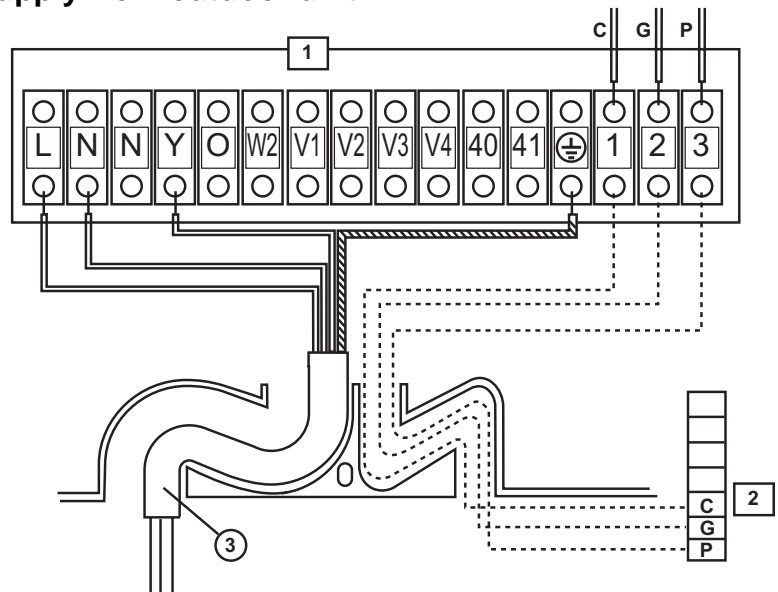
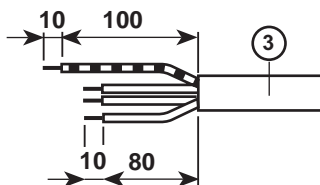
40SMC---N

Refrigerant connections

Cooling only 40SMC 009N, 012N Power supply from outdoor unit

NOTE:
See the outdoor unit installation manual.

③ Interconnection cable (H07 RN-F)

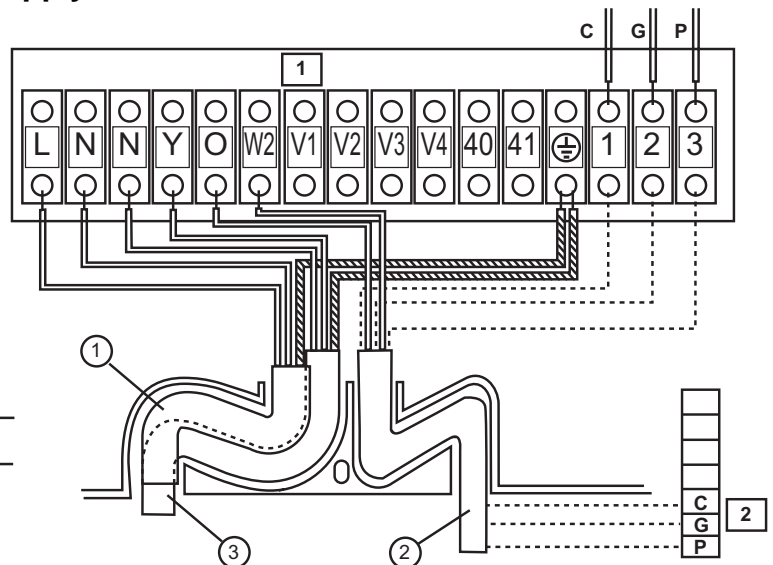
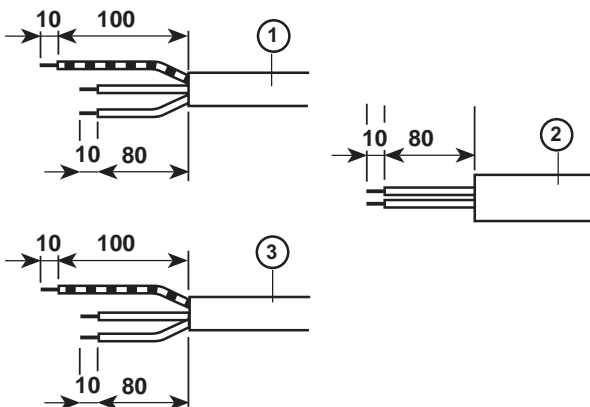



	Indoor and outdoor units interconnections (mm²)														CRC		
Model	GND	L	N	-	Y	O	W2	V1	V2	V3	V4	40	41	1	2	3	
40SMC009N	4G1,5					Disconnected								3 x 0,75 H03VV-F			
40SMC012N	4G2,5																
40SMC009N, 40SMC012N combined with Multisplit	4G1					Disconnected											

Heat pump 40SMC 009N, 012N Power supply from indoor unit

IMPORTANT:
Cable ① must always be placed above cable ③.

- ① Power supply cable (H07 RN-F)
- ② Interconnection cable (H07 RN-F)
- ③ Interconnection cable (H07 RN-F)



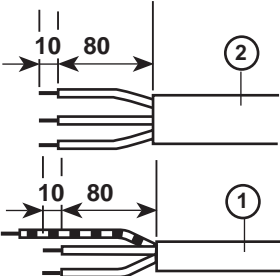
				Indoor and outdoor units interconnections (mm²)														CRC		
Model	GND	L	N	GND	N	Y	O	W2	V1	V2	V3	V4	40	41	1	2	3			
40SMC009N	3G1,5			3G1,5			2 x 1,5		Disconnected						3 x 0,75					
40SMC012N	3G2,5			3G2,5			2 x 1,5		Disconnected						H03VV-F					

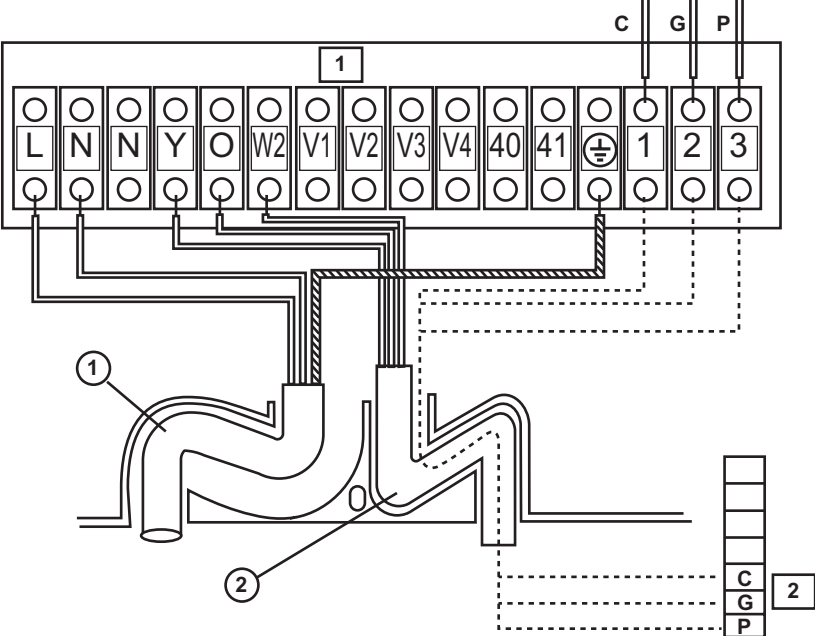
40SMC---N

Refrigerant connections

Heat pump combined with Multisplit 40SMC 009N, 012N, 018N, 024N Power supply from outdoor unit

① Interconnection cable (H07 RN-F)
② Interconnection cable (H07 RN-F)



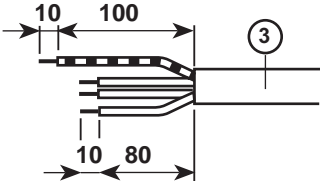


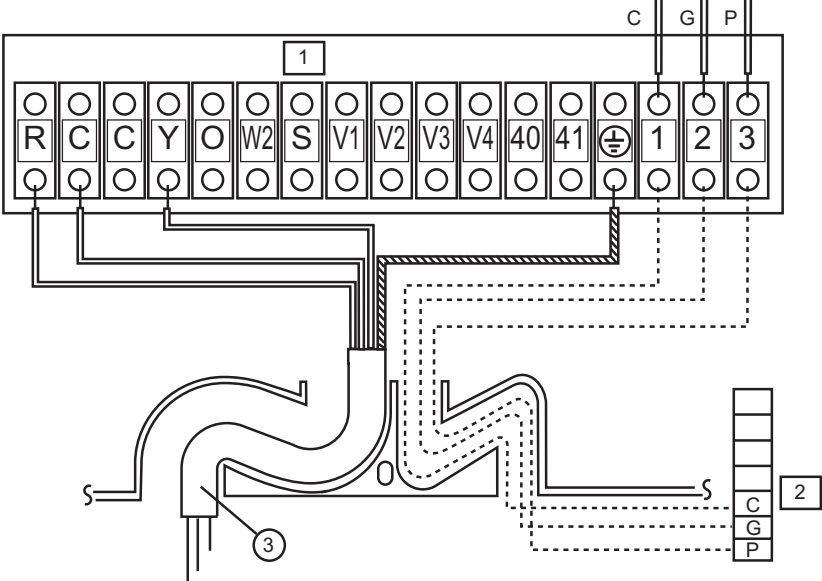
Model	Indoor and outdoor units interconnections (mm²)											CRC					
	GND	L	N	Y	O	W2	V1	V2	V3	V4	40	41	1	2	3		
40SMC 009,012,018,024N combined with Multisplit	3G1		3 x 1			Disconnected									3 x 0,75 H03VV-F		

Cooling only 40SMC 018N, 024N, 028N, 036N, 048N, 060N

NOTE:
See the outdoor unit installation manual.

③ Interconnection cable (H07 RN-F)



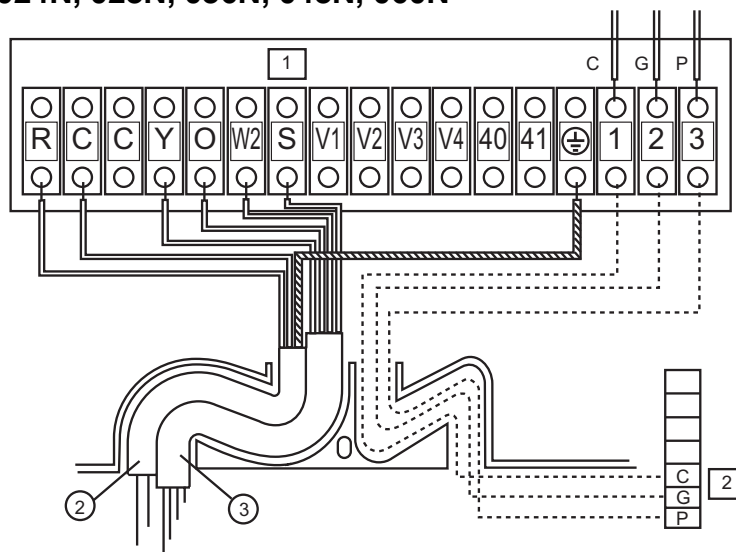
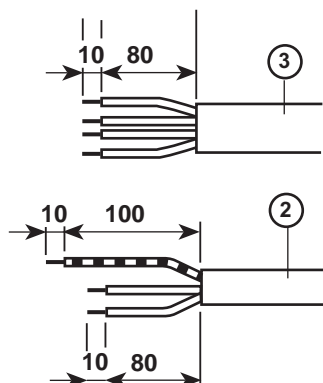



Model	Indoor and outdoor units interconnections (mm²)												CRC			
	GND	R	C	Y	O	W2	S	V1	V2	V3	V4	40	41	1	2	3
40SMC018, 024, 028N	4G1			Disconnected										3 x 0,75 H03VV-F		
40SMC036, 048, 060N														H03VV-F		

Heat pump 40SMC 018N, 024N, 028N, 036N, 048N, 060N

NOTE:
See the outdoor unit installation manual.

- ② Interconnection cable (H07 RN-F)
③ Interconnection cable (H07 RN-F)



	Indoor and outdoor units interconnections (mm²)													CRC		
Model	GND	R	C	Y	O	W2	S	V1	V2	V3	V4	40	41	1	2	3
40SMC018N, 024N, 028N	3G1			4 x 1				Disconnected						3 x 0,75 H03VV-F		
40SMC036N, 048N, 060N																

Legend

1 Indoor unit

- ⊕ Earth
- L Live power supply
- N Neutral power supply
- R Power supply connection to outdoor unit
- C Neutral, connection to outdoor unit

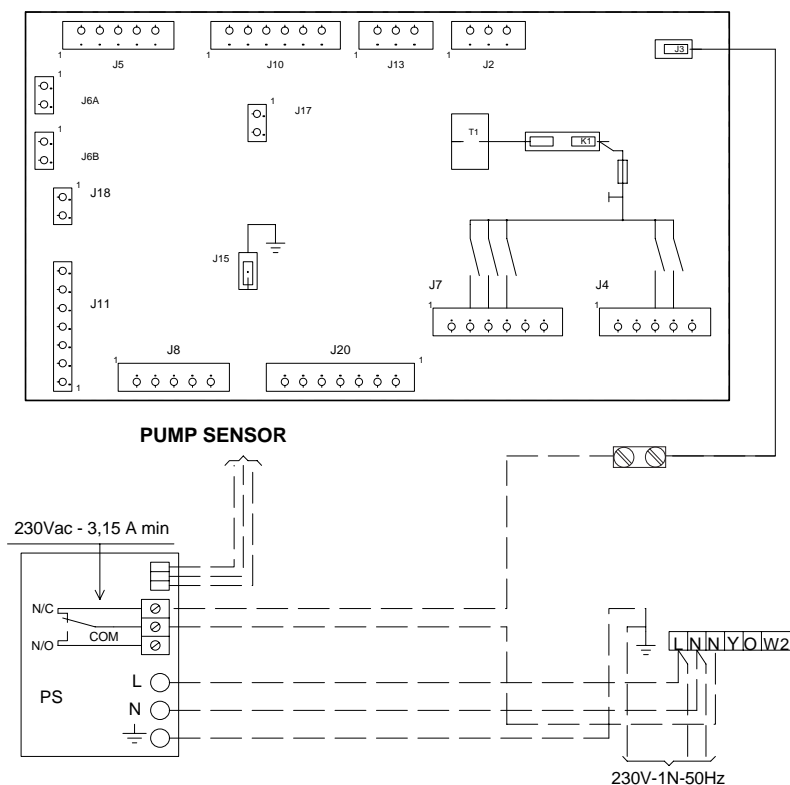
- Y Compressor interlocking contac
- O Reversing valve control (Heat pump only)
- W2 Outdoor fan signal
- S Thermostat end of defrosting signal

- V1, V2, V3, V4 Indoor fan speed
- 40, 41 Electric heater control
- 1, 2, 3 Room Controller control

2 Room Controller (CRC)

- P Power supply
- G Earth
- C Signal

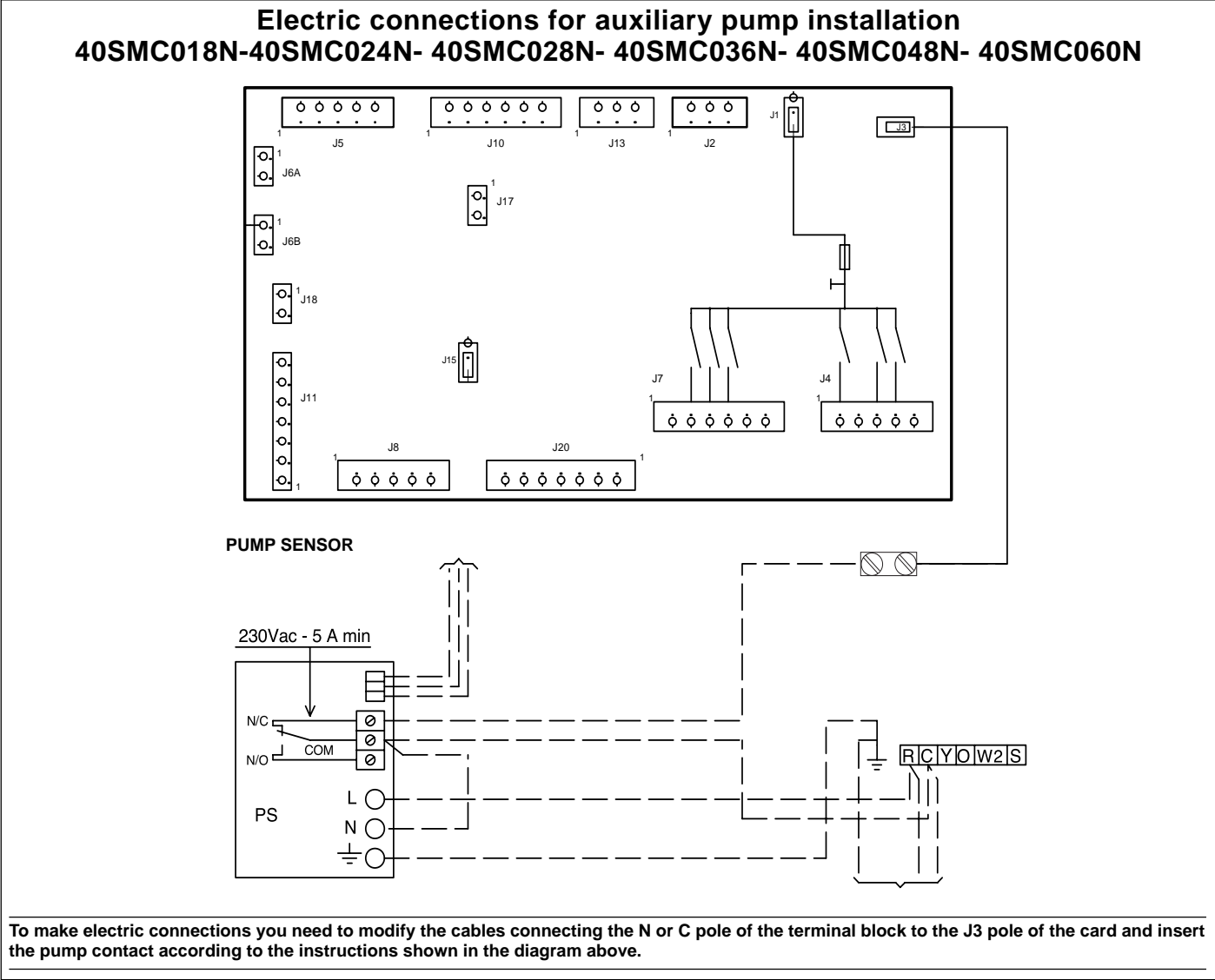
Electric connections for auxiliary pump installation - 40SMC009N-40SMC012N



To make electric connections you need to modify the cables connecting the N or C pole of the terminal block to the J3 pole of the card and insert the pump contact according to the instructions shown in the diagram above.

40SMC---N

Electric connection



Alarm code, accessories and guide for the owner

Alarm code

A diagnostic system is contained in the electronic card to “check” the system integrity.
When the diagnostic system is under alarm, the red LED installed onto the main card flashes as indicated below:

- 0,5 sec ON and 0,5 sec OFF with a 5 second pause before the error code is repeated.
- The number of flashes depends on the error that has been detected.

Not all of the errors can be reset (see table below).

Error code	Error	Resettable *
3	Air temperature sensor	YES
4	Internal battery temp. sensor	YES
5	External battery temp. sensor	YES
7	Outdoor unit error	YES
10	EEPROM faulty	YES
11	Card serial number faulty	YES
12	Address/zone number incomplete	YES

* **NO:** Turn off power supply to the system, check and repair, if necessary. Turn on power.
YES: Check

Accessories

For accessories refer to the product catalogues and documents.

Guide for the owner

When installation and tests are completed explain the Operation and Maintenance Manual to the owner, with particular attention to the main operating modes of the air conditioner, such as:

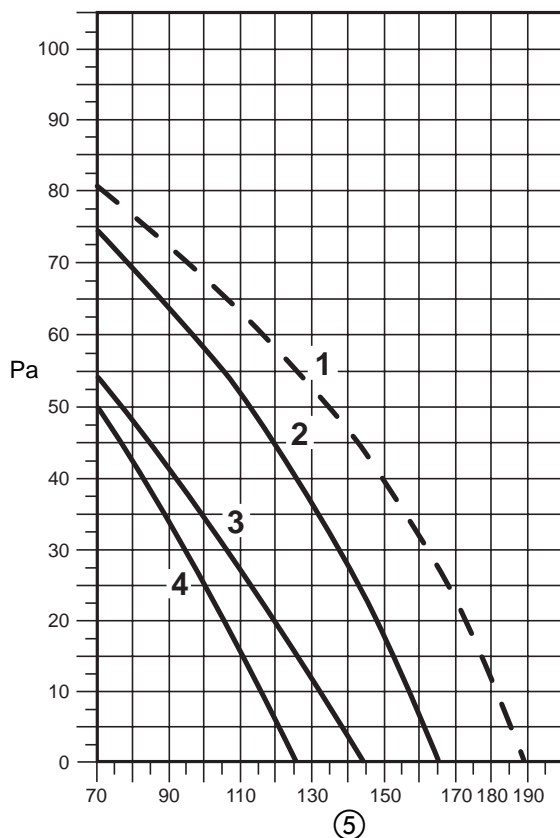
- Turning the unit on and off.
- Functions of the remote control.

Leave the two installation manuals for the indoor and outdoor units with the owner for future use during maintenance operations or for any other needs.

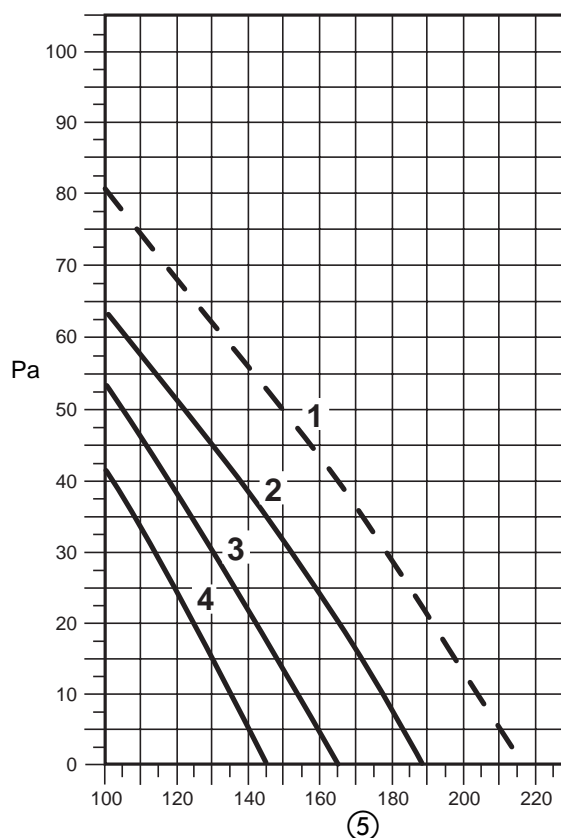
40SMC---N

Fan diagrams

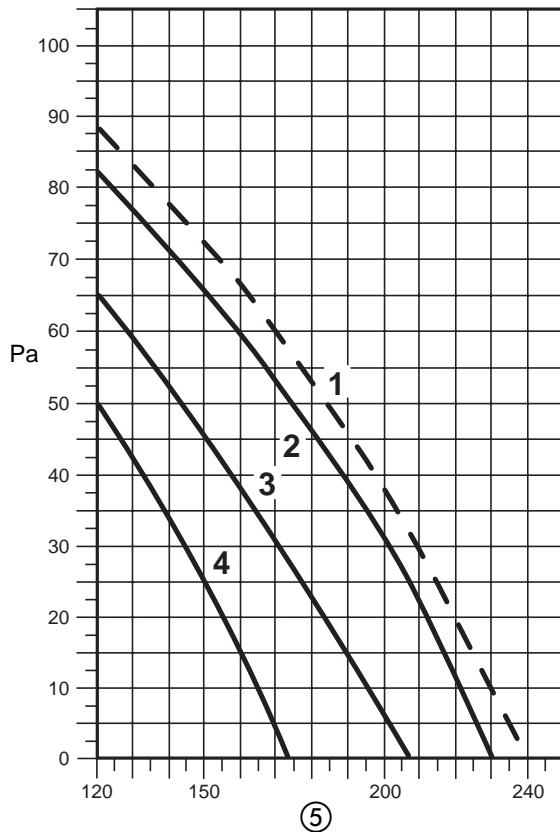
40SMC009N



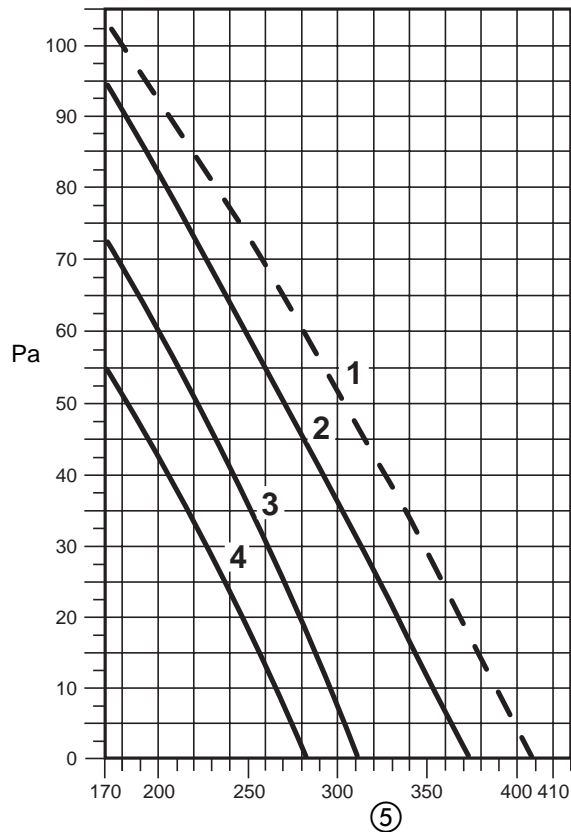
40SMC012N



40SMC018N



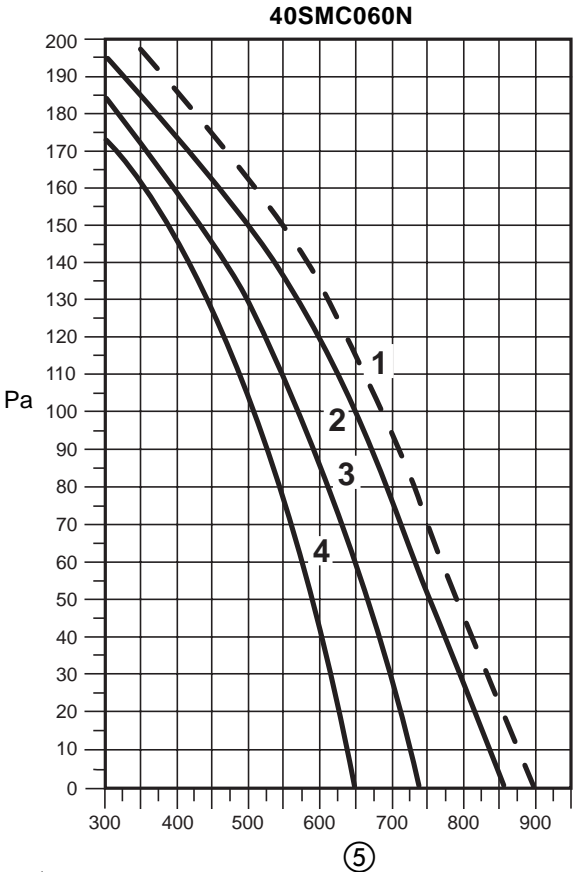
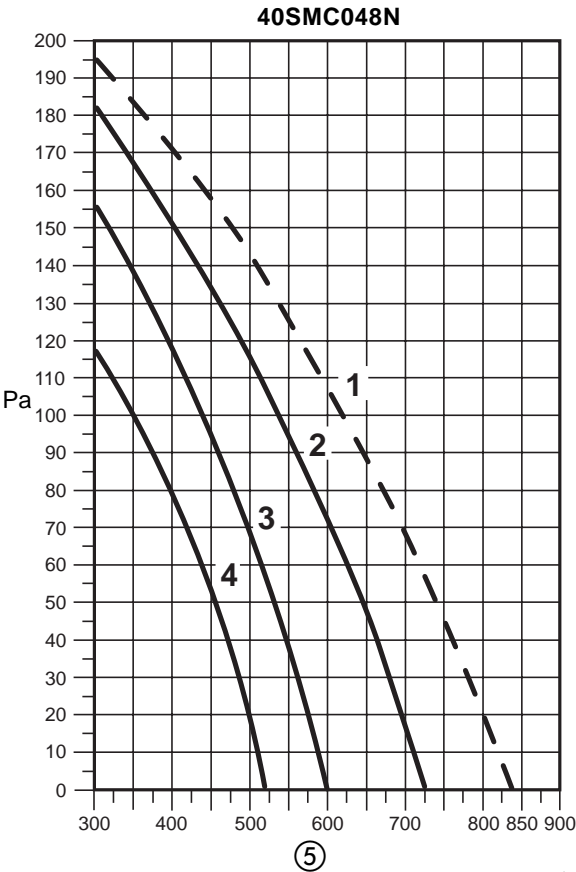
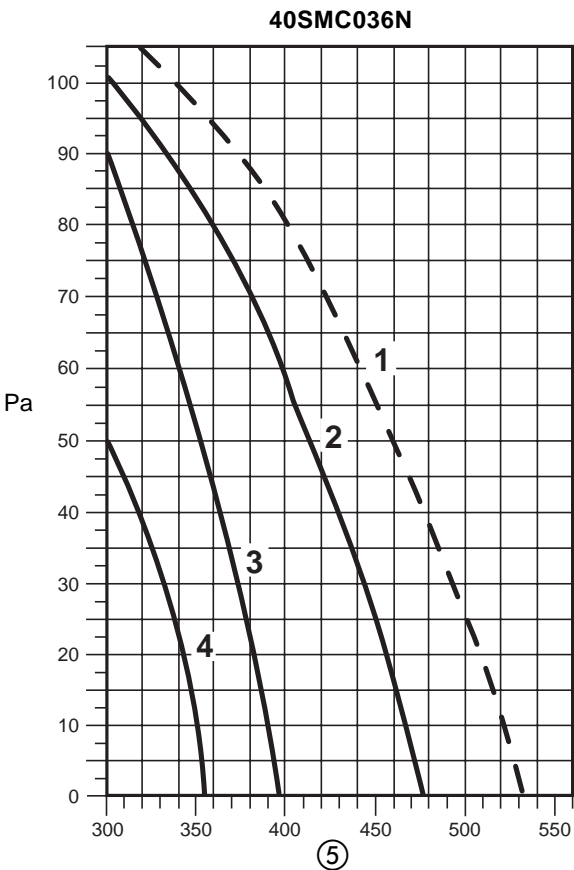
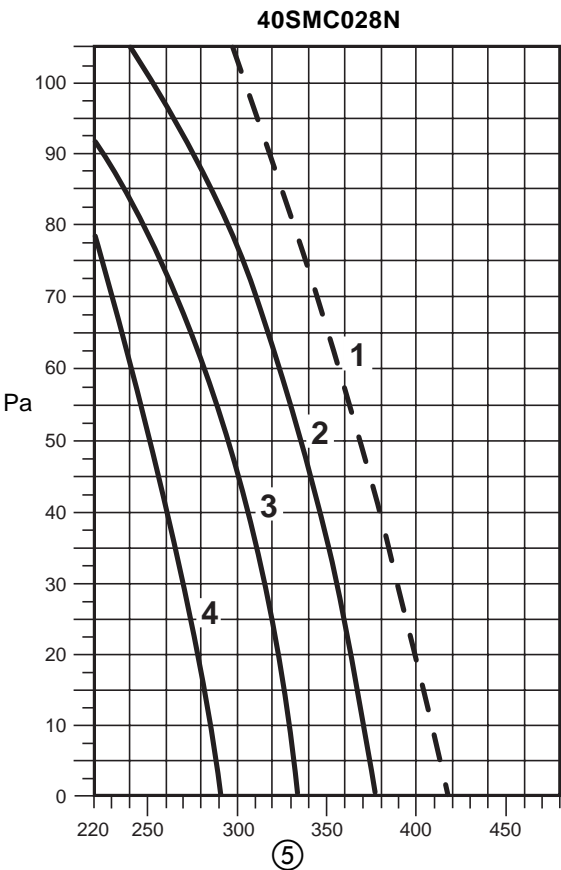
40SMC024N



- 1 - Super high speed (optional)
- 2 - High speed
- 3 - Medium speed
- 4 - Low speed
- ⑤ - Air flow (l/s)

40SMC---N

Fan diagrams



- 1 - Super high speed (optional)
- 2 - High speed
- 3 - Medium speed
- 4 - Low speed
- ⑤ - Air flow (l/s)



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The manufacturer reserves the right to change any product specifications without notice.